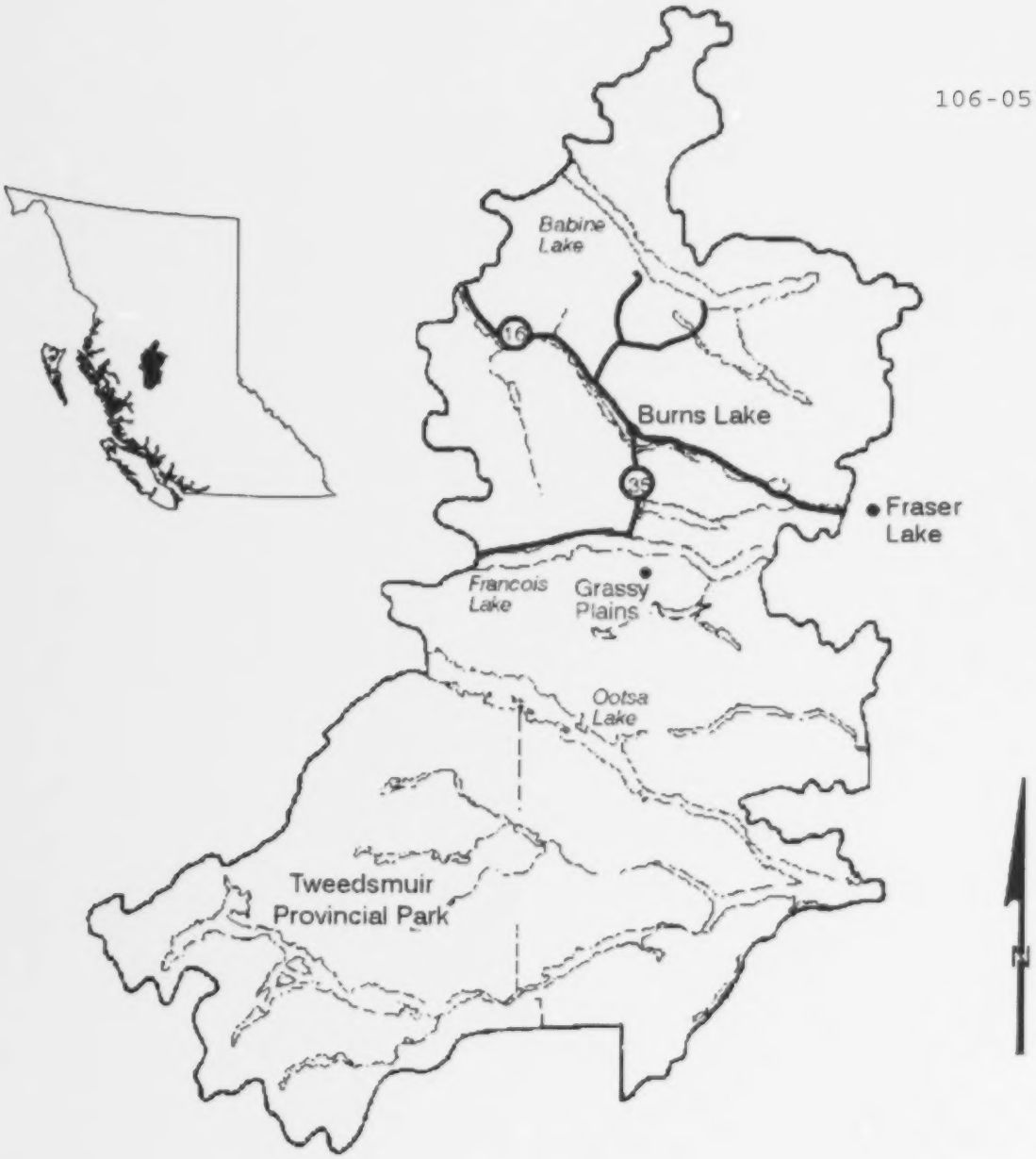
Lakes, (TSA) Public Discussion Paper

Lakes Timber Supply Area

Timber Supply Review Discussion Paper June 1995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Grassy Plains
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Tweedsmuir Provincial Park
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Lakes Timber Supply Review Highlights

• The British Columbia Forest Service is reviewing the timber supply in all timber supply areas* and tree farm licence* areas in the province. This review examines the impacts of current forest management practices* on the timber supply*, economy, environment and social conditions of the local area and the province. Based on the results of this review, the chief forester may decide to maintain or adjust the allowable annual cut* for the Lakes Timber Supply Area.

• The current allowable annual cut in the Lakes Timber Supply Area is 1.5 million cubic metres per year. Approximately 65 per cent of this wood is processed in the milling and manufacturing facilities located in the area. (page 5)

• Timber harvesting in the Lakes Timber Supply Area supports approximately 1,179 person-years* of employment in the area, approximately 21 per cent of the total local labour force. An estimated total of 2,910 person-years of employment are created provincially. (page 5)

• The base case timber supply forecast indicates the current allowable annual cut can be maintained for 70 years with current integrated management practices. The timber supply is then projected to decline by 13 per cent over the next two decades to 1,310,000 cubic metres per year. This level is projected to be maintained for 90 years before increasing to the long-term sustainable level of 1,441,000 cubic metres per year. (page 7)

• The short-term timber supply may be lower than initially predicted due to the impacts of management practices to protect non-timber values such as caribou habitat, ecosystem networks, small riparian areas, biodiversity and older forests. The area of productive forest that was deducted from the timber harvesting land base to protect these values may be underestimated. (page 8)

• The short-term timber supply could be either greater or less than projected because:

  • estimates of the amount of timber in the existing mature forests may be higher or lower than the volumes actually harvested

  • green-up* height requirements may not meet visual quality objectives, or trees may take more or less time to reach the required height

  • the size of the timber harvesting land base may vary with changes in markets and technology (pages 9-10)

• Several factors indicate the short-term timber supply may be higher than predicted:

- timber productivity for pine plantations may be higher than estimated
- recovery of useable timber from harvested areas may be improved
- intensive silvicultural treatments or commercial thinning may increase predicted timber yields (pages 10-11)

• The chief forester must determine an allowable annual cut as part of a strategy to achieve the projected long-term sustainable timber supply level. The base case forecast provides one alternative, but the chief forester may select another harvest level based on his consideration of the factors required under Section 7 of the Forest Act.

• A Land and Resource Management Planning* process for the Lakes Timber Supply Area is currently underway, involving the public, interest groups and government agencies. The social, economic and environmental goals for the Lakes Timber Supply Area may be changed through this process.

• Another review of the timber supply in the Lakes Timber Supply Area will be completed within five years to incorporate decisions from other processes and the choices made in the Land and Resource Management Plan, as well as changes in economic conditions, available information and analytical techniques.

*** Throughout this document, an asterisk at the end of a phrase indicates the phrase is defined in the definition section on the back of this page.**

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Definitions

Allowable annual cut
The rate of timber harvest permitted each year from a specified area of land, usually expressed as cubic metres of wood per year.

Base case forecast
The timber supply forecast that illustrates the effect of current forest management practices on the timber supply using the best available information.

Current forest management practices
Forest practices that were being approved and implemented in the area when this review was initiated. These practices are described in this paper beginning on page 6.

Forest licence
An agreement with the provincial government which grants a private interest the right to harvest a specific volume of timber each year from Crown land within a timber supply area.

Forest Practices Code
A law which requires better forest practices, with heavy penalties for violators. The code will be implemented in June, 1995.

Green-up
The time required for regenerated forests to reach a desired condition (usually a specific height) after harvesting to meet integrated resource management objectives and allow harvesting to take place in adjacent areas.

Integrated resource management
The identification and consideration of all resource values, including social, economic and environmental needs, in resource planning and decision-making.

Land and Resource Management Plan
A consensus-building process involving a cross-section of the public, interest groups and government agencies, to establish resource management objectives and strategies for a defined forest area.

Person-year
One person working the equivalent of one full year. If someone works full time for six months, he or she accounts for 0.5 person-years.

Protected Areas Strategy
A provincial initiative to protect representative ecosystems and special features on a regional basis.

Riparian areas
The stream bank and flood plain adjacent to streams or water bodies.

Timber harvesting land base
Crown forest land within the timber supply area that is currently considered feasible and economical for timber harvesting.

Timber supply
The volume of timber available for harvesting over time, under a particular management regime.

Timber supply area
An area of Crown land defined in accordance with the *Forest Act* by an established pattern of wood flow from the forest to the primary timber-using industries.

Tree farm licence
An agreement entered into with the provincial government which provides for the establishment, management and harvesting of timber by a private interest on a defined area of Crown land in accordance with the *Forest Act*.

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Introduction

The British Columbia Forest Service is reviewing the timber supply in all timber supply areas* and tree farm licence* areas in the province. The objectives of this three-year review are to:

- identify the economic, environmental and social consequences of existing forest management practices—including their impacts on the short- and long-term timber supply
- identify where improved information is required to make reliable forecasts
- provide the chief forester with information to make necessary adjustments to the allowable annual cuts for the next five years

This discussion paper summarizes the technical reports for the Timber Supply Review in the Lakes Timber Supply Area and encourages British Columbians to comment on the findings. Public comments will be accepted until September 13, 1995. You will find a response form at the end of this paper to help you provide input.

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Background to the Timber Supply Review

For at least 20 years, governments have known that British Columbia's timber supply would decline in the future—we could not keep cutting at the rate we've been going. Now there is an urgent need for up-to-date information to review the timber supply and allowable annual cuts throughout the province.

A 1991 study completed by the Forest Service, *A Review of the Timber Supply Analysis Process for British Columbia,* examined the procedures which led to the determination of allowable annual cuts, and confirmed the need for change.

The study found that:

- existing allowable annual cuts were based on outdated information and management practices
- procedures failed to fully account for integrated resource management practices and protection of non-timber values
- procedures were far too time-consuming
- analytical techniques had to be strengthened

As a result of these procedural weaknesses, very few timber supply analyses had been completed since the early 1980s, with few allowable annual cut adjustments.

The Forest Service acted quickly on the study's recommendations. The Timber Supply Review was initiated to assess short- and long-term timber supplies in light of current forest practices and integrated resource management goals.

Renewing our forests, securing our future

In British Columbia today, people are wrestling with one of the most complex and compelling issues of our time—the need to protect our environment and, at the same time, sustain our economy for present and future generations.

In addition to the Timber Supply Review, the government has a number of initiatives to create positive change for British Columbia:

- **The new Forest Renewal Plan is already creating hundreds of projects across the province to restore and protect the health of British Columbia's forests, create new forest jobs, and increase economic benefits from each tree harvested.**
- **The Forest Practices Code is ensuring new forestry standards and better**

management of the resource.

• The Protected Areas Strategy is doubling British Columbia's parks and protected wilderness—expanding parks and preserving pristine wilderness for our children's future.

• Through the work of dedicated British Columbians, the Commission on Resources and Environment and regional Land and Resource Management Plan teams, long-standing land-use debates are being resolved. The government has delivered land-use plans for Vancouver Island, the Cariboo-Chilcotin, the Kootenay-Boundary and a Land and Resource Management Plan for the Kamloops area which mark important steps towards securing British Columbia's future.

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The chief forester's responsibility

Determining the allowable annual cuts for Crown forest lands in British Columbia is the responsibility of the province's chief forester. It is one of the chief forester's most important responsibilities since it affects the local and provincial economy and environment—now and in the future. Section 7 of the *Forest Act* requires the chief forester to consider the following factors to determine allowable annual cuts for timber supply areas and tree farm licences:

a) the rate of timber production that may be sustained from the area, taking into account:

- the composition of the forest and its expected rate of growth
- the time in which the forest will become re-established
- silvicultural treatments, including reforestation
- standards of timber utilization
- constraints on the amount of timber produced from the area due to use of the forest for purposes other than timber production
- any other information which relates to the capability of the area to produce timber

b) the short- and long-term implications to the province of alternative rates of timber harvesting from the area

c) the nature, production capabilities, and timber requirements of established and proposed processing facilities

d) the economic and social objectives of the Crown for the area, the region and the province, as expressed by the minister of forests

e) abnormal insect or disease infestations and major salvage programs planned for the timber on the area

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent, professional judgment based on the best information that is available. By law, the chief forester is independent of the political process and is not directed by the minister of forests when determining allowable annual cuts. In these determinations the chief forester considers relevant information from any source, including interest groups. However, these determinations cannot be inappropriately influenced by the advocacy efforts of any group.

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Timber Supply Review process

The Timber Supply Review is an improvement over past methods, with better information and superior analytical techniques. The process was designed to stimulate public discussion through the release of reports and this paper, and to accommodate new information, techniques and ideas. Figure 1 illustrates the five-step process that has been developed for the Timber Supply Review in timber supply areas. The diagram also indicates the status of the Timber Supply Review for the Lakes Timber Supply Area and the estimated time required to complete each step in the process.

As the legal mandate for allowable annual cut determinations for tree farm licence areas is the same as for timber supply areas, the Timber Supply Review process for tree farm licences is based on similar principles, but it has been designed to reflect the management role of timber companies in these licences. In the past, tree farm licences have not included specified timelines for licencees to prepare the information needed by the chief forester to determine allowable annual cuts for these areas. To reflect changing forest management standards, replacement tree farm licences specify timelines for preparing information.

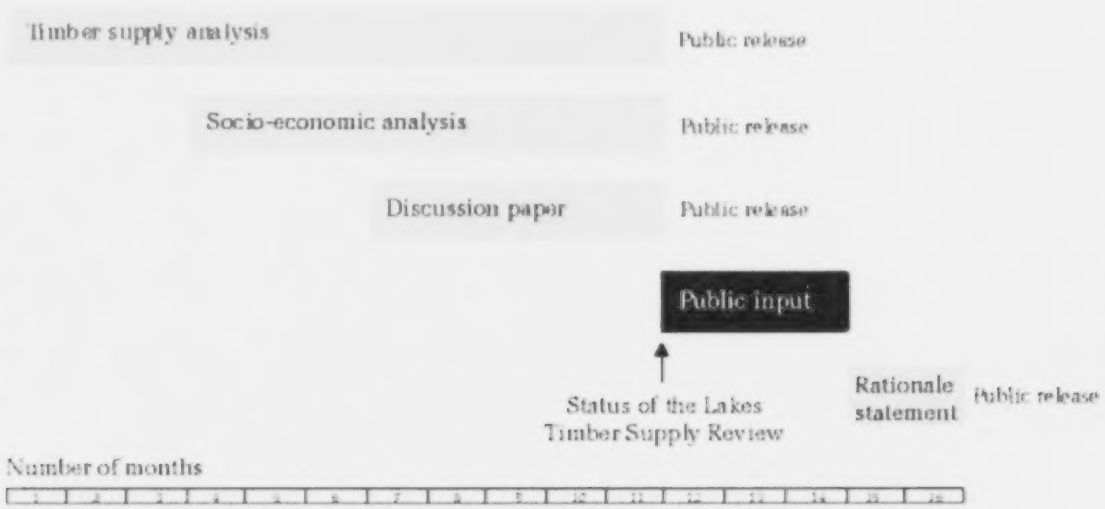

Figure 1 Steps in the Timber Supply Review process

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A commitment to incorporate change

The *Forest Act* requires the chief forester to reassess the allowable annual cut for each timber supply area and tree farm licence area at least every five years after this review is completed to incorporate new information, new practices and government policies. Implementation of major government initiatives such as the Forest Practices Code, the Protected Areas Strategy and the land-use recommendations of Land and Resource Management Plans may have significant impacts on the timber supply in specific timber supply areas and tree farm licences. In these cases, the chief forester may decide to determine the allowable annual cuts more frequently than every five years.

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Forest Practices Code

A *Forest Practices Code Act* for British Columbia will be implemented in June, 1995. This law requires better forest practices throughout the province, and establishes heavy penalties for violators. When the Code is fully implemented, forest management practices will be changed to meet its requirements. These new practices may influence both short- and long-term timber supply.

Because the *Interim Timber Harvesting Guidelines for the Interior Portion of the Prince Rupert Forest Region*, which are the regional basis for the Code, have been implemented in the Lakes Timber Supply Area for some time, extensive changes in forest management practices are not anticipated to meet the requirements of the Code. Information will be provided to the chief forester on the timber supply impacts of these practices for consideration in this allowable annual cut determination. In some cases, however, further implementation and experience with the Code will be required before the timber supply effects of new practices can be properly assessed, making it necessary to incorporate these factors in future allowable annual cut determinations.

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Land and Resource Management Plan

A process to develop a Land and Resource Management Plan has been underway in the Lakes Timber Supply Area since late 1993. A Lakes Resource Council of 21 people representing various community perspectives was formed in April 1994 to assist with planning. This process will lead to recommendations on new resource management objectives and strategies that balance social, economic and environmental values. Once these recommendations are approved by government, current forest management practices will be revised so they are consistent with these objectives.

The Resource Council will make recommendations on approximately 216,000 hectares of the Lakes Timber Supply Area which were identified as candidate areas for protected area status in 1994. Until final decisions are made on the designation of these areas, they are included in the timber harvesting land base. It is expected that some of these areas will be designated as protected areas, resulting in short- and long-term impacts on the timber supply.

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Timber Supply Review in the Lakes Timber Supply Area

Forest Service staff in the Lakes Forest District finalized the data for the timber supply analysis in September 1994. The Forest Service then conducted and released a short- and long-term timber supply analysis (*Lakes Timber Supply Analysis,* June, 1995). Appendix A of the report includes a summary of the data and assumptions used in the analysis. A consultant also completed a socio-economic analysis of the timber supply forecasts (*Lakes Timber Supply Area: Socio-Economic Analysis,* June, 1995). Both reports are available from the Lakes Forest District office in Burns Lake and the Prince Rupert Forest Region office in Smithers.

This discussion paper summarizes these two reports and highlights critical factors the chief forester must consider to determine the allowable annual cut for the Lakes Timber Supply Area. In conjunction with the release of this discussion paper, Forest Service staff will actively solicit public input to ensure the information in the Timber Supply Review is correct. Input will be accepted until September 13, 1995, and will be summarized in a report to the chief forester and the minister of forests.

After considering all the available information, the chief forester will determine the allowable annual cut for the Lakes Timber Supply Area early in 1996. This determination and a *Rationale Statement* for the determination will be released with the *Summary of Public Input*.

Throughout this discussion paper the page numbers from the technical reports are provided so you can refer to them for additional information (*TSAR* is the *Lakes Timber Supply Analysis Report*, and *SEA* is the *Lakes Timber Supply Area: Socio-Economic Analysis*).

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Description of the Lakes Timber Supply Area

The Lakes Timber Supply Area covers 1,123,667 hectares in north-central British Columbia. Three large lakes are the main features: Francois Lake, Babine Lake (British Columbia's largest natural lake) and Ootsa Lake (known as the "Gateway to Tweedsmuir Park"). The timber supply area boasts another 400 lakes greater than 10 hectares and an undetermined number of smaller lakes. Gently rolling hills dominate the landscape.

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Forest resources

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Timber

Figure 2 illustrates that 57 per cent of the land base is currently included in the timber harvesting land base—the area suitable and available for timber harvesting with current land management objectives and harvesting methods. The remainder of the land base is either non-Crown land, not-forested or not suitable for timber harvesting, due to harvesting economics, severe reforestation difficulties, slope instability, low productivity or environmental sensitivity. (*TSAR* page 7)

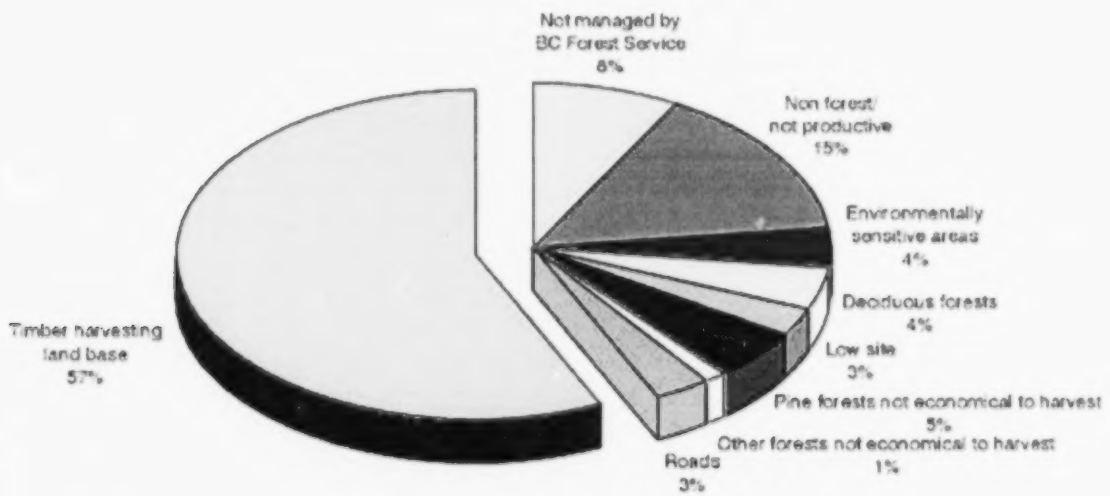
Not managed by BC Forest Service 6%
Non forest/ not productive 15%
Environmentally sensitive areas 4%
Deciduous forests 4%
Low site 3%
Pine forests not economical to harvest 5%
Other forests not economical to harvest 1%
Roads 3%
Timber harvesting land base 57%

Figure 2 Classification of the land within the Lakes Timber Supply Area

Large areas of lodgepole pine forests cover the landscape, with spruce in the wetter areas and balsam at upper elevations (Figure 3). Lodgepole pine generally occurs in even-aged forests which have regenerated after wildfires and in plantations established following harvesting.

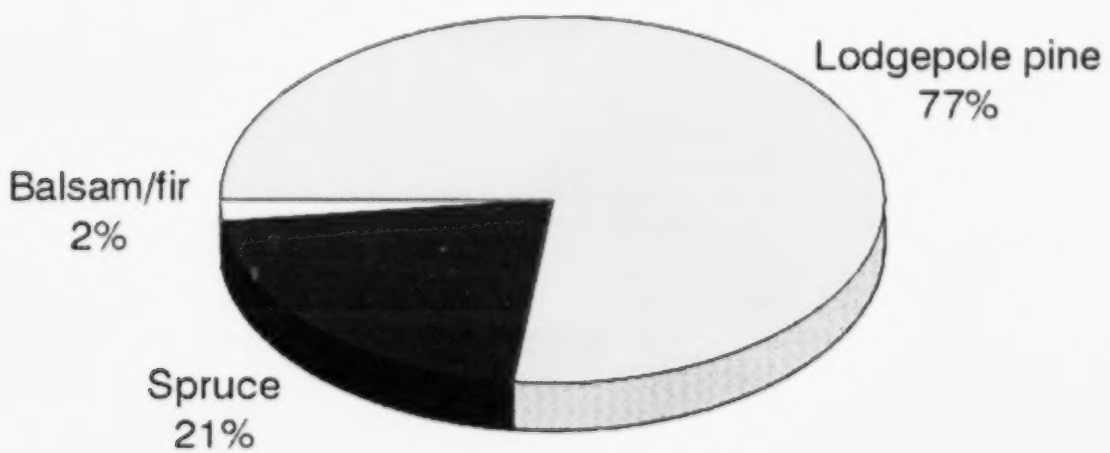

Figure 3 Area occupied by the dominant commercial tree species in the timber harvesting land base

Figure 4 shows that 54 per cent of the timber harvesting land base has forests older than 120 years. The older pine forests are becoming susceptible to the mountain pine beetle which can rapidly damage large areas of pine timber.

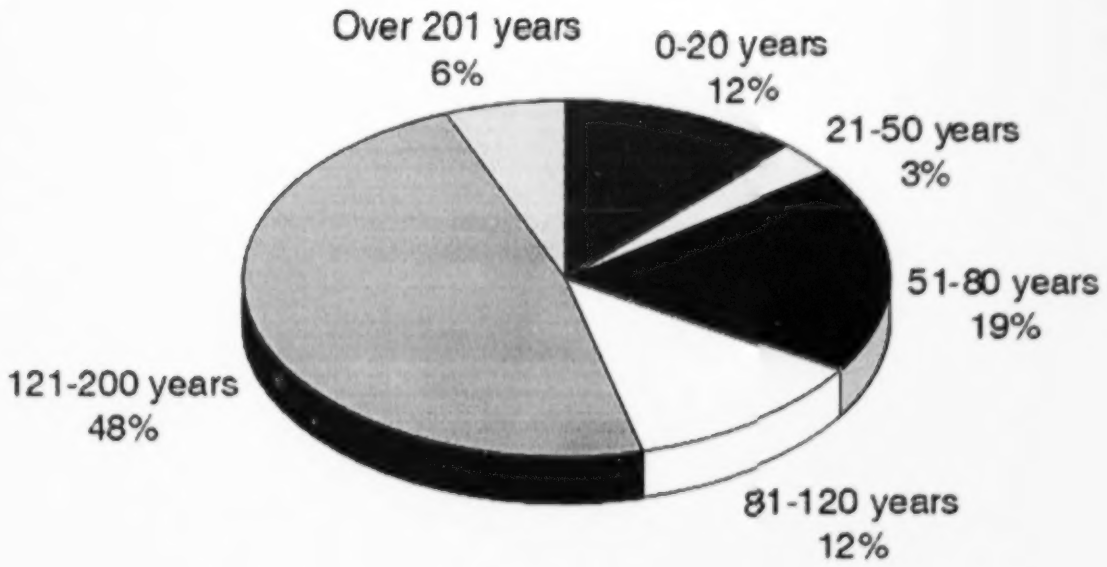

Figure 4 Forest ages in the timber harvesting land base

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Wildlife

The Lakes Timber Supply Area contains an abundance of wildlife, including trumpeter swans, deer, grizzly and black bears, mountain goats and caribou, coyotes, wolves, and other small fur bearers. Winter habitat and migration corridors for the woodland caribou herd are a particularly important resource. (*SEA* page 7)

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Recreation and tourism

The many lakes and rolling terrain in the timber supply area provide a range of recreational opportunities. Hiking, mountain biking, hunting, fishing, boating, back-country recreation and wildlife viewing are common activities for residents and tourists in the summer months. In the winter, snowmobiling, ice fishing and cross-country skiing are popular. The highway travel corridors are also highly valued for their scenery. It is expected that recreation and tourism activities will continue to grow in the future. (*SEA* page 24)

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Fisheries

The Lakes Timber Supply Area has a very important fishery resource. The lakes contain an abundance of rainbow trout, dolly varden, kokanee and lake char. Babine Lake is an important nursery for Pacific salmon and is therefore considered a provincial resource. Other significant fisheries are found in Uncha Creek, Pinkut Creek, Sutherland River and the Bulkley River. (*SEA* page 9)

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Range

Within the central, settled portion of the timber supply area, forested areas provide range for a modest-sized cattle industry. (*SEA* page 30)

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Current allowable annual cut

The total allowable annual cut in the Lakes Timber Supply Area is 1.5 million cubic metres. Approximately 67.7 per cent of the allowable annual cut is allocated to long-term forest licences, 29.9 per cent is harvested through the Small Business Forest Enterprise Program administered by the Forest Service, 1.4 per cent is allocated to woodlot licences and one per cent is unallocated. (*SEA* page 35)

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Socio-economic profile

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Population

The total population within the Lakes Timber Supply Area is 5,635 (based on 1991 data), approximately 28 per cent residing in the community of Burns Lake. Other communities include Grassy Plains, Southbank and Ootsa Lake, as well as smaller communities between Francois Lake and Ootsa Lake and along the Highway 16 corridor.

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First Nations

Aboriginal people comprise approximately 30 per cent of the total population in the timber supply area. Six First Nations have reserve lands and traditional territory in the Lakes Timber Supply Area: Nee-Tahi-Buhn Band, Skin Tyee Band, Burns Lake Band, Broman Lake Band, Cheslatta Carrier Nation Band and Lake Babine Band. (*SEA* page 30)

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Local economy

The local economy is heavily dependent on forestry. In 1991 it was estimated that 37 per cent of the employment in the Lakes Timber Supply Area was derived from the forest industry, making it one of the least diversified areas of the province. (*SEA* page 20)

Tourism and recreation industries based on the beautiful scenery, wildlife populations and varied outdoor activities are also important economic factors. Tourism activity tends to be seasonal with most visitors arriving between May and October. Sport fishing in the lakes, along with viewing and hunting the significant wildlife populations (including moose, deer and black bear), help drive summer tourism which supplements employment and income for local merchants and outdoor guides. The agricultural sector, mainly cattle production, is also an important contributor to the local economy. (*SEA* page 24)

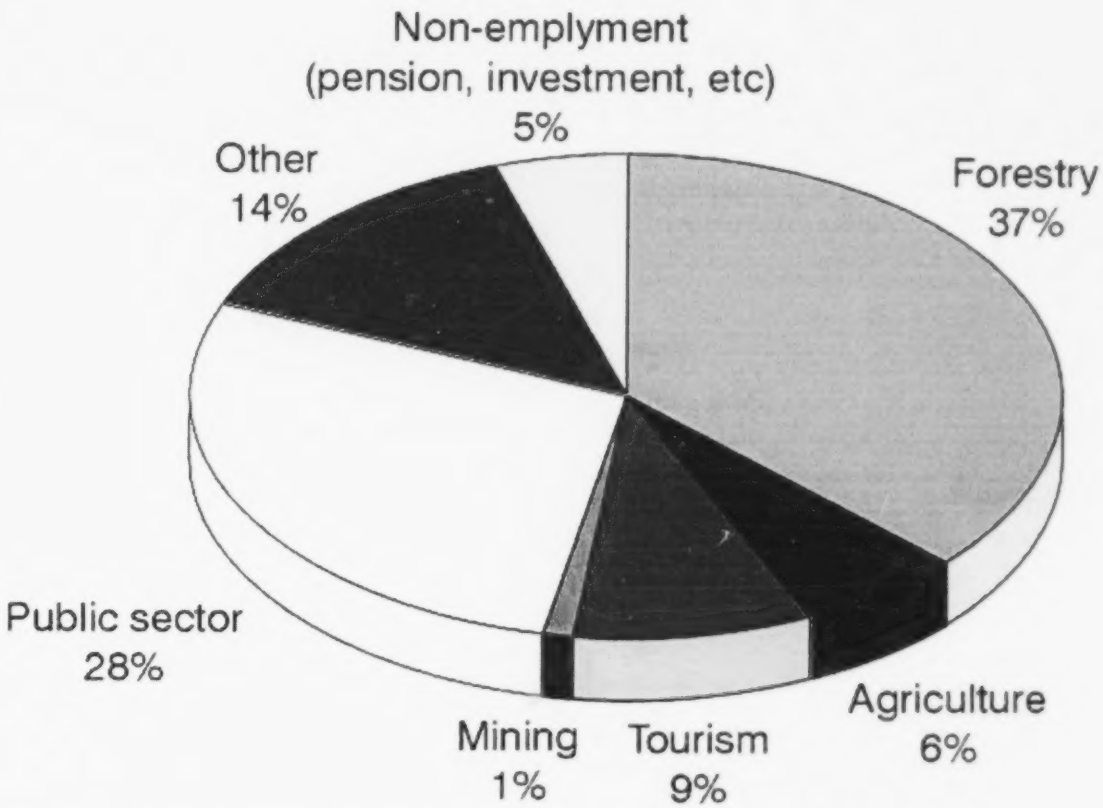

Figure 5 illustrates the labour force within each industry in the Lakes Timber Supply Area. (*SEA* page 16)

Figure 5 Labour force by industry for the Lakes Timber Supply Area

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Forest sector

A long history of logging and timber processing has occurred in the timber supply area and this sector continues to be the largest source of revenue and employment. The wood processing industry now includes two relatively large sawmills, one east of the community of Burns Lake and one at Decker Lake, west of Burns Lake. Two secondary manufacturing plants and a few small mills are also active in the area. More than 30 per cent of the wood harvested from the Lakes Timber Supply Area leaves the area to be processed at mills in adjacent timber supply areas. (*SEA* page 39)

Harvesting, processing and silvicultural activities resulting from the current allowable annual cut in the Lakes Timber Supply Area generate an estimated 809 person-years of direct forestry employment within the timber supply area. An additional 370 person-years of spin-off employment are estimated to be created through forest company and employee spending. In total, the present allowable annual cut generates approximately 1,179 person-years of employment in the Lakes Timber Supply Area. Additional employment is created by processing timber harvested outside the timber supply area. (*SEA* page 44)

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Provincial economy and revenues

Provincially, it is estimated that timber harvested from the Lakes Timber Supply Area generates approximately 2,910 person-years of employment throughout the province, with more than 40 per cent in the Lakes Timber Supply Area. (*SEA* page 46)

Approximately $37.05 million in provincial government revenues are generated annually by timber harvesting in the Lakes Timber Supply Area. This figure is based on the average total fees for harvesting public timber in the area plus estimated personal income taxes and other tax revenues. These estimates include the increased stumpage revenues being generated to fund the Forest Renewal Plan.

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Current management practices

Public forest lands in British Columbia provide recreational enjoyment, fish and wildlife habitat, water supplies, timber resources and many other benefits. The Forest Service manages the forest, range and recreation resources on public lands. The Ministry of Environment, Lands and Parks is responsible for the management of parks and fish, wildlife and water resources. Both agencies subscribe to the principle of integrated resource management, where all resources are considered before management decisions are made.

The timber supply analysis was based on management practices implemented in the Lakes Timber Supply Area in 1994, when this analysis was initiated. Readers are encouraged to review the *Lakes Timber Supply Analysis Report* (pages 12-14 and Appendix A) for more detailed information.

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Management zones and integrated resource management practices

For the timber supply analysis, Forest Service staff divided the timber harvesting land base into management zones by grouping areas where similar integrated resource management practices are implemented. This approach permits an analysis of the different types of forests and the range of practices in the Lakes Timber Supply Area. The area in each zone was estimated from existing inventories and guidelines for integrated resource management in the timber supply area. Site specific practices implemented in any one area may differ from the practices used in the analysis for each zone.

Figure 6 illustrates the area within each management zone.

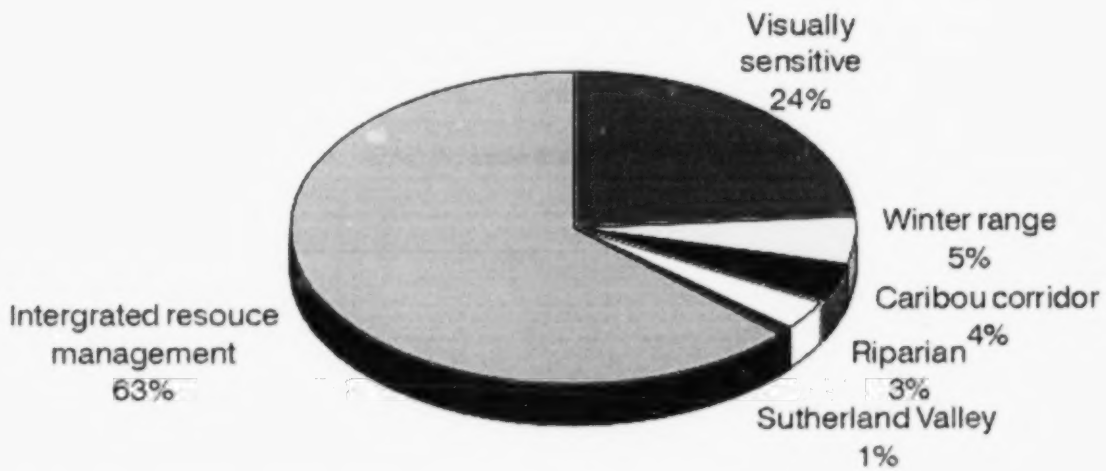


Figure 6 Area of each management zone in the timber harvesting land base

Forest cover requirements have been defined for each zone to permit analysis of the integrated resource management guidelines that were being implemented when the timber supply analysis was initiated. These requirements establish:

- the maximum amount of forest that can be younger than a certain age at any time, to ensure harvesting does not become overly concentrated in a zone

- a minimum area that must be covered by forests older than a certain age.

The forest cover requirements for each management zone are described below.

- **Visually sensitive zones** (156,519 hectares) —important viewscapes from most lakes and from Highways 16 and 35. The management objective is to maintain sufficient forest cover to limit visible changes in the landscape. Two zones have been identified based on visual quality objectives:

- moderately sensitive (partial retention zone) (131,641 hectares) — at least 88 per cent of the area must have trees at least 6.5 metres tall at any one time

- very sensitive (retention zone) (24,878 hectares) — at least 98 per cent of the area must have trees at least 6.5 metres tall at any one time

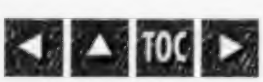
• **Wildlife winter range** (34,420 hectares) — areas mapped as prime habitat for moose and deer. At least 35 per cent of the timber harvesting land base within this zone must have forests older than 100 years at any time. A maximum of 33 per cent of the timber harvesting land base is permitted to have forests less than three metres tall at any time.

• **Caribou corridor** (29,035 hectares) — a migration corridor used by the Tweedsmuir Entiako caribou herd to travel between summer range and calving areas in Tweedsmuir Park and their winter range south of Tetachuk Lake. Forest cover requirements in this zone are based on a recently completed Integrated Resource Management Plan and current understanding of the forest conditions that permit caribou travel. Lodgepole pine forests must have fewer than 2,000 trees per hectare at least 10 metres tall. In addition, no more than 12.5 per cent of the timber harvesting land base is permitted to have trees less than three metres tall at any time.

• **Riparian zone** (16,455 hectares) — individual riparian areas which are larger than 100 hectares are included in this zone. A minimum of 50 per cent of the timber harvesting land base must be maintained in forests at least 120 years old in this zone. Adjoining areas can only be harvested if regenerated forests are at least five metres tall.

• **Sutherland Valley** (4,648 hectares) — an area deferred from timber harvesting in a Local Resource Use Plan approved in 1992. For the timber supply analysis it was assumed no harvesting would occur for 10 years.

• **Integrated resource management zone** (416,939 hectares) — the remaining timber harvesting land base not assigned to another zone. This zone is scheduled to be harvested in three entries so at any given time, no more than 33 per cent of the timber harvesting land base is permitted to contain forests less than three metres tall.



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Current practices

The current forest management practices that are approved and implemented in each zone are briefly described below. The *Interim Timber Harvesting Guidelines for the Interior Portion of the Prince Rupert Forest Region* outline current forest management practices in the Lakes Timber Supply Area.

• **Basic silviculture** — British Columbia laws require areas that are harvested and expected to produce timber in the future must be reforested with ecologically acceptable species within a specified time frame (two to three years was used in the analysis). The most common silvicultural practice is to clearcut harvest, site prepare, plant, and brush and weed if needed.

• **Unsalvaged losses** — Timber losses due to wildfire, insects, diseases and wind are minimized as much as possible, and damaged timber is salvaged when feasible. Losses of merchantable timber to mountain pine beetles, fire and wind are expected to be approximately 39,000 cubic metres per year. Losses due to other insects such as spruce bark beetle and balsam bark beetle are undetermined at this time. Losses to disease and animals are believed to be negligible.

• **Wildlife/biodiversity** — To ensure a reasonable chance of protecting general biodiversity and maintaining wildlife, the *Interim Regional Timber Harvesting Guidelines for the Interior Portion of the Prince Rupert Forest Region* require that regenerated forests on previously harvested areas be at least three metres tall before the adjacent timber can be harvested, and that at least 12 per cent of the area have forests older than 120 years distributed throughout the landscape.

The forest cover requirements described in the section on management zones, and forest land deducted from the timber harvesting land base, including environmentally sensitive areas, forests dominated by deciduous trees and forests that have been uneconomical to harvest, are designed to provide for the requirements of wildlife, biodiversity and older forests.

The forest cover requirements described in the section on management zones, and forest land removed from the timber harvesting land base, including environmentally sensitive areas, forests dominated by deciduous trees and forests that have been uneconomical to harvest, provide for the requirements of wildlife, biodiversity and older forests.

• **Harvestable ages** — Minimum harvestable age is defined as the time it takes for trees to reach harvestable conditions. The minimum harvestable ages used in the timber supply analysis range from 80 to 130 years for pine, 105 to 165 years for spruce and 125 years for balsam and fir. For regenerated forests, minimum harvestable ages range from 60 to 120 years for pine and 80 to 170 years for spruce.

• **Timber utilization** — Within cutblocks, timber that meets or exceeds the following minimum diameter at stump height and is suitable for manufacturing lumber must be utilized:

  • lodgepole pine - 15 centimetres

  • other species - 17.5 centimetres

• **Roads and landings** — Road building and harvesting layout follow provincial and regional guidelines. For the timber supply analysis, 5.4 per cent of the timber harvesting land base was deducted for roads and landings (equivalent to 4.2 per cent of the productive land base).

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Timber supply forecasts and critical factors

It is important to understand that the timber supply forecasts presented in the analysis report and in this paper do not represent either a short-term allowable annual cut determination or a long-term strategy to adjust harvest levels. The base case forecast and the critical factors described below will be considered by the chief forester to determine the allowable annual cut for the next five years.

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Base case forecast

To complete the timber supply analysis for the Lakes Timber Supply Area, a computer model was used to generate a base case* timber supply forecast using the following principles:

- maintain the current allowable annual cut for as long as possible, or if this was not possible, find the maximum initial harvest level
- if the predicted long-term sustainable timber supply level was lower than the initial harvest level, reduce the timber supply level within a defined range of eight to 12 per cent per decade, until the long-term level was reached
- if possible, maintain the timber supply at or above the predicted long-term sustainable level at all times

Using the best information available when the analysis was conducted in 1994 and following the conditions described above, the base case forecast for the Lakes Timber Supply Area indicates the present allowable annual cut can be maintained for approximately 70 years (Figure 7). This is followed by a 10 per cent decline and then a three per cent reduction 10 years later. This level is projected to be maintained until 170 years from now when the timber supply is projected to increase by approximately nine per cent to the long-term sustainable timber supply level of 1,441,000 cubic metres per year. (*TSAR* pages 16-17).

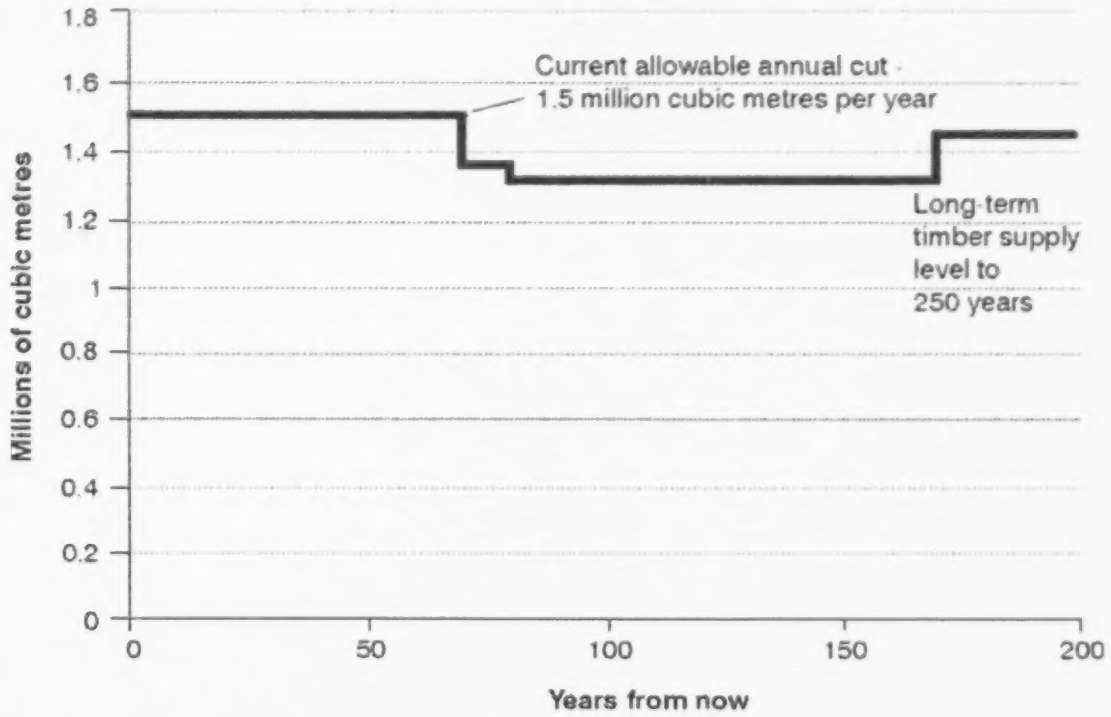

Figure 7 Base case timber supply forecast

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Examining critical factors

Since 1994 when the data was prepared for the timber supply analysis, Forest Service staff have been collecting more information for some of the factors in the analysis. Also, tests completed during the timber supply analysis identified which factors had the greatest effect on the timber supply forecasts. These critical factors are discussed in this section.

Other factors were tested and are discussed in the *Lakes Timber Supply Analysis Report* (pages 25 to 42) but were not considered critical to this review and therefore are not included in this discussion paper.

The chief forester must carefully evaluate this information when assessing the allowable annual cut and identifying where improved information is needed. We encourage you to do the same.

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Factors indicating the short-term timber supply may be lower than predicted in the base case

• Practices to protect non-timber resources
Several of the management practices implemented to protect non-timber resources result in a reduction in the timber harvesting land base or an increase in forest cover requirements. Both factors often reduce the short-term timber supply. The estimates used in the timber supply analysis to account for the following practices are of particular concern in the Lakes Timber Supply Area:

• Tweedsmuir Entiako caribou winter range and migration corridor
Approximately 9 per cent of the timber harvesting land base in the Lakes Timber Supply Area is located within the Tweedsmuir Entiako caribou winter range and migration corridor.

Timber harvesting plans have been proposed for the winter range area since the 1980s, but no plans have been approved. In 1992, a Local Resource Use Plan involving representatives of a broad range of public perspectives was initiated to develop strategies for resource management in this area. Because management strategies have not yet been defined, special practices were not incorporated in the timber supply analysis. Staff of the Ministry of Environment, Lands and Parks have indicated timber harvesting may be either severely constrained or not permitted at all in this area. Figure 8 illustrates the timber supply impacts of a reduced timber harvesting land base.

Timber harvesting plans for the migration corridor have recently been deferred until the Lakes Land and Resource Management Plan is completed. Although special forest cover requirements were included in the timber supply analysis for this area, staff of the Ministry of Environment, Lands and Parks are concerned that these requirements will not provide adequate caribou habitat in the migration corridor.

Both the winter range area and the migration corridor are candidates for protected status under the Protected Areas Strategy. Land use decisions for these areas will be made through the Lakes Land and Resource Management Plan which is expected to be completed in 1996. Until then, timber harvesting will be concentrated in other areas, which will increase the pressure on non-timber resource values in those areas.

• New habitat information
In the timber supply analysis, general wildlife requirements were incorporated when the forest cover requirements were developed for the riparian, winter range, visually sensitive and caribou migration corridor management zones. Since the data was prepared for the timber supply analysis, additional habitat information has been collected that indicates a need to establish corridors between important habitats. Although there will be opportunities to harvest timber within these corridors, the timber harvesting land base may be reduced to ensure adequate habitat areas are maintained. Staff of the Ministry of Environment, Lands and Parks believe that to maintain these corridors the timber harvesting land base may have to be reduced, and the area with forest cover requirements that restrict timber harvesting may be increased.

• small riparian areas
In smaller riparian areas, use of machinery is restricted along water courses and in streamside buffers, but

these areas are not reserved from timber harvesting and they were not deducted from the timber harvesting land base. However, in the future, timber harvesting may not be permitted in some of these areas, which may reduce the size of the timber harvesting land base. Much of this reduction would be accounted for in the creation of forest ecosystem networks described above.

• **biodiversity**
To maintain biodiversity, small patches and individual trees are left after timber harvesting. Staff of the Ministry of Environment, Lands and Parks are of the opinion that these practices reduce the size of the timber harvesting land base as well as the amount of mature timber available for harvesting.

Each of these practices may reduce the size of the timber harvesting land base. However, the impacts of the above practices were not directly tested in the timber supply analysis. Figure 8 illustrates the timber supply impacts of reductions in the size of the timber harvesting land base. (*TSAR* page 30)

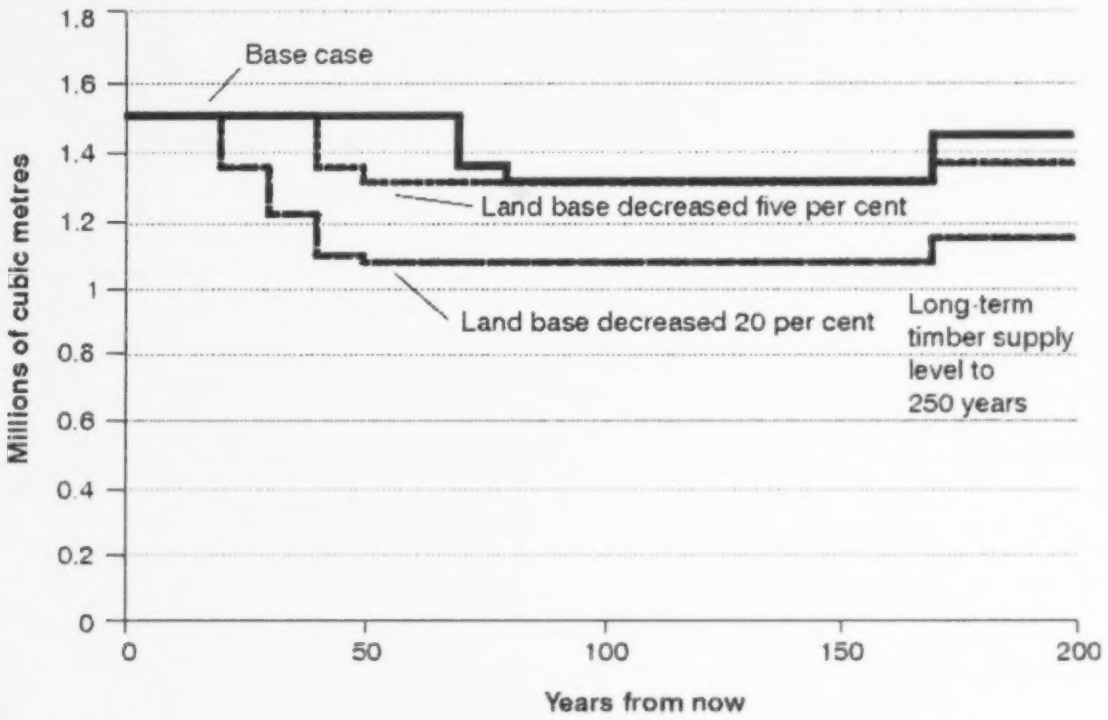

Figure 8 Impacts of changes in the size of the timber harvesting land base

• **Maintaining older forests**
The *Interim Timber Harvesting Guidelines for the Interior Portion of the Prince Rupert Forest Region* include the objective of maintaining 12 per cent of the forested area within a timber supply area in forests older than 120 years distributed throughout the landscape. Forest cover requirements for the visually sensitive, riparian, and winter range zones and the caribou migration corridor ensure adequate amount of older forests are maintained. In addition, areas not included in the timber harvesting land base such as environmentally sensitive areas and problem forest types provide older forests. The timber supply analysis indicates approximately 32 per cent of the timber harvesting land base would have forests older than 100 years at the end of a 250-year planning horizon.

However, Ministry of Environment, Lands and Parks staff are concerned that relying on these requirements does not guarantee adequate representation of the range of ecosystems in the area, or protection against fragmentation of wildlife habitats. Figure 9 illustrates the timber supply impact of

requiring 10 per cent of the forests in the Sutherland Valley and the integrated resource management zone were required to be at least 140 years old. (*TSAR* page 36)

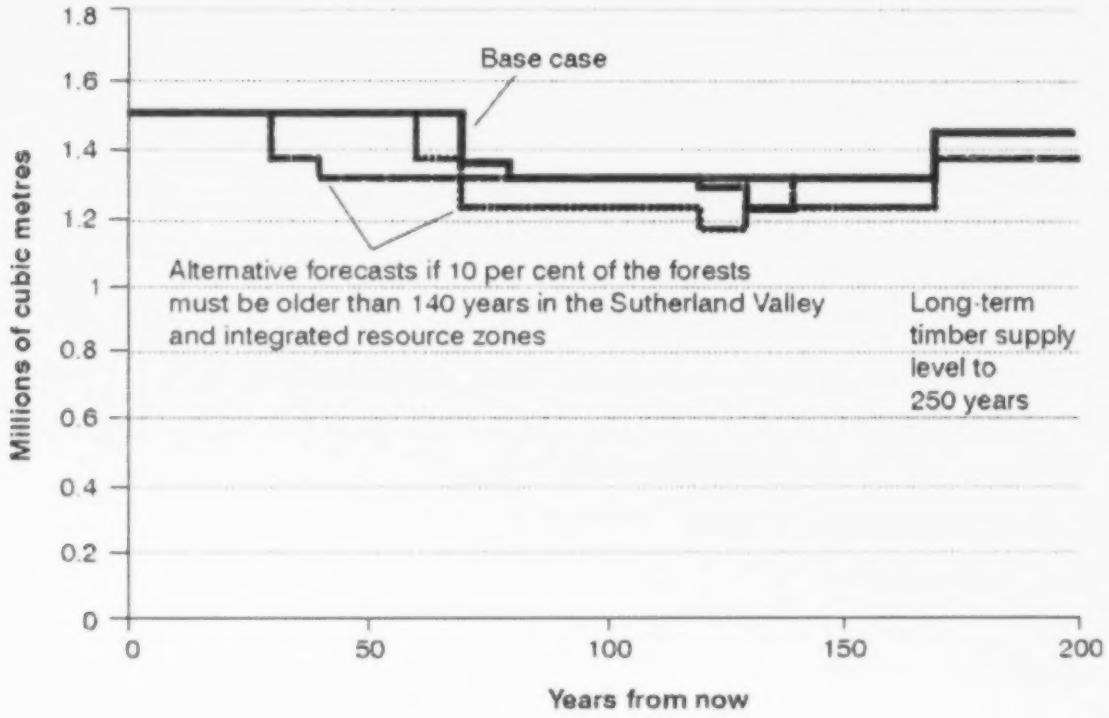

Figure 9 Impact of specific changes to the requirements to maintain older forests

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Factors indicating the short-term timber supply may be higher or lower than predicted in the base case

• Estimates of the amount of existing mature timber
As Figure 10 illustrates, estimates of the amount of merchantable timber in the existing mature forests in the timber harvesting land base have a substantial impact on the projected timber supply (*TSAR* page 27). Studies are underway to examine the accuracy of the estimates of the amount of mature timber used in the timber supply analysis.

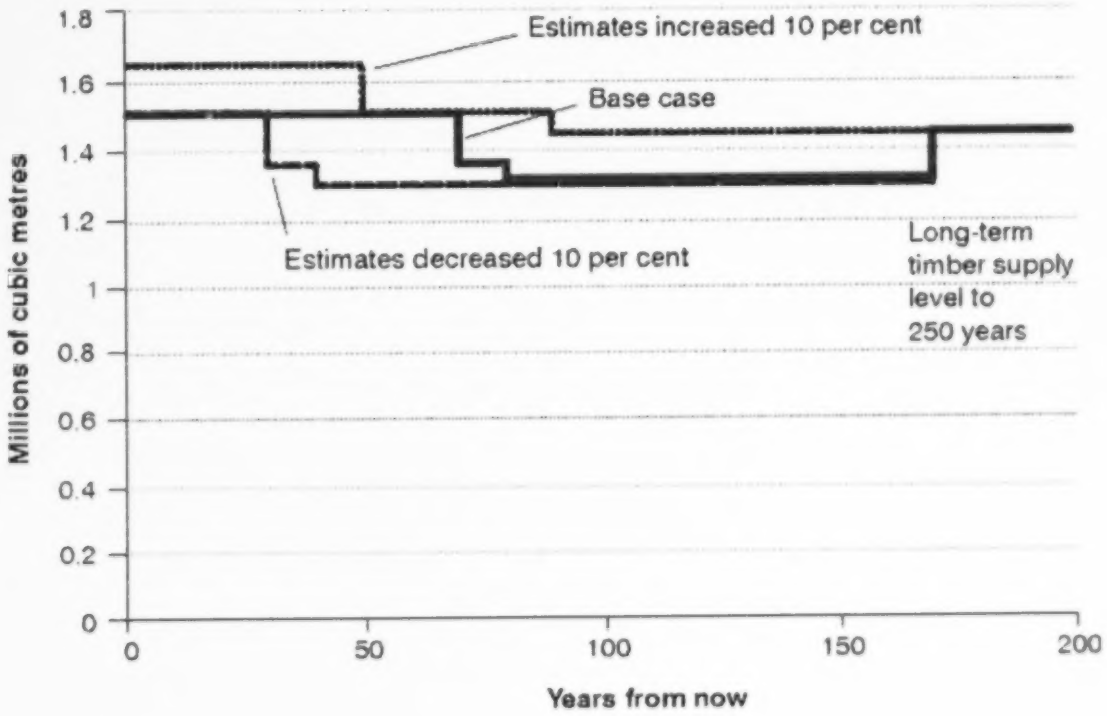

Figure 10 Impact of changing the estimates of mature timber in existing forests

• Green-up height in visually sensitive zones
Management for visual quality is accomplished by first classifying the sensitivity of the areas, then defining the amount of change due to harvesting that is acceptable for each level of visual sensitivity. In the timber supply analysis, these classifications were based on existing inventories. (*TSAR* page 35)

In these areas, regenerated forests must be at least 6.5 metres tall, which is estimated to be reached in 27 years, before adjacent timber can be harvested. However, it is possible that these requirements may not be appropriate because:

- the minimum height may not provide the forest conditions required to meet the stated visual objectives

- it may take regenerated forests less or more time than estimated to reach this minimum height

Classification and practices for visually sensitive areas are being examined through the Lakes Land and Resource Management Plan which will incorporate public perspectives on these requirements.

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Factors indicating the short-term timber supply may be higher than predicted in the base case

• Timber productivity estimates for pine plantations
The biological productivity of a forest site determines how quickly trees will grow on that site, what the expected timber volumes from regenerated forests will be, and when these forests will be suitable for harvesting. The most accurate assessments of site productivity are based on the growth of 30 to 150-year-old forests.

Recent studies in the Lakes and Morice Timber Supply Areas that compare growth rates of pine plantations to those of natural pine forests suggest the data used for the base case forecast most likely underestimates timber productivity for pine plantations in the Lakes Timber Supply Area (*TSAR* page 38). The results of the study in the Lakes Timber Supply Area were not complete when the timber supply analysis was initiated and therefore the new information was not included in the base case forecast.

Tests were completed in the timber supply analysis to evaluate the impacts of the revised estimates on the base case forecast (Figure 11). The predicted increase in timber supply is due to a reduction of two to four years in the time required for pine plantations to grow to the minimum green-up* height, a significant reduction in the minimum harvest ages for pine plantations growing on medium and poor quality sites, and an increase in the timber volume that can be harvested from these forests. A separate test assessed the impacts of applying the new information to the integrated resource management zone only, because it is expected the integrated resource management practices required on the remainder of the timber harvesting land base will not permit all the intensive management practices, such as site preparation and planting, necessary to achieve the higher productivity estimates. (*TSAR* page 38)

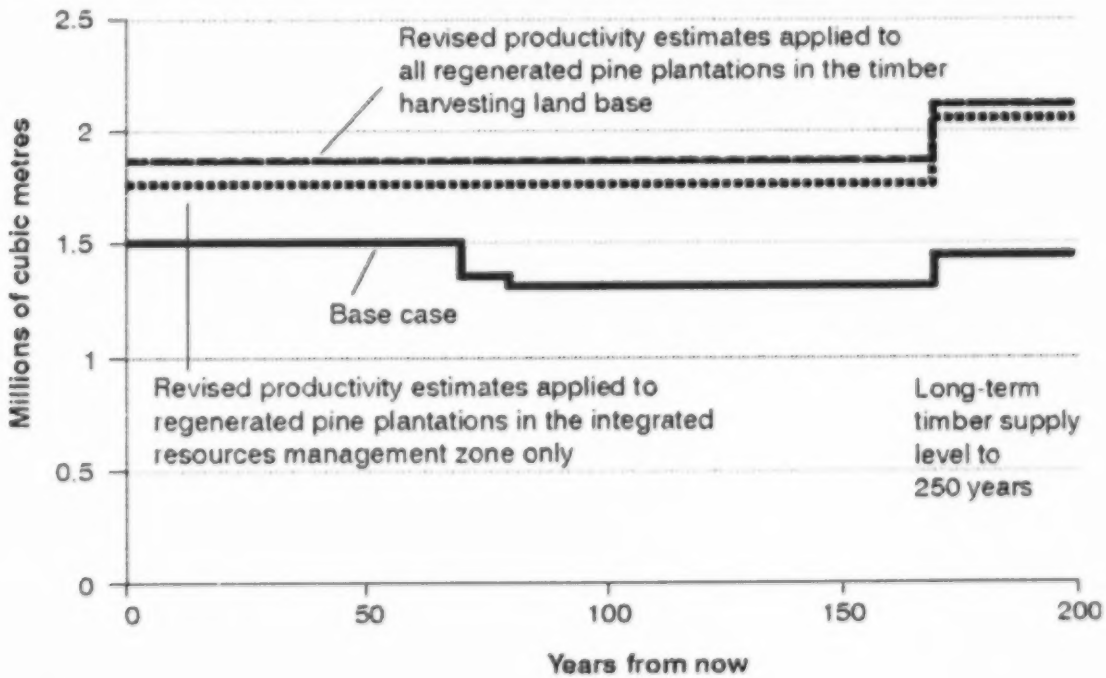

Figure 11 Impacts of changing the timber productivity estimates for pine plantations

• Increased timber utilization
Current management standards require that all timber of commercial species that meets or exceeds specified size limits and is suitable for lumber and pulp chips be removed from within cutblocks. It is common for the minimum size requirements for lodgepole pine to be smaller than for other species (15 centimetres at stump height versus 17.5 centimetres for other species).

In the Lakes Timber Supply Area, timber companies have indicated they are currently utilizing more wood than required. This may result in more volume being removed from harvested areas than is currently predicted by the timber supply analysis, potentially increasing the short- and long-term timber supply.

• Size of the timber harvesting land base
In the Lakes Timber Supply Analysis, environmentally sensitive areas and forests not traditionally harvested were deducted from the timber harvesting land base. Changes in harvesting and reforestation technology and relatively high timber markets may make some of these forests economical to harvest in the future.

A test completed in the timber supply analysis indicates a five per cent increase in the timber harvesting land base allows the current allowable annual cut to be maintained for 100 years, 30 years beyond the base case forecast. (*TSAR* page 30)

• Intensive silvicultural treatments
In some circumstances, intensive silvicultural treatments such as juvenile spacing or fertilization that increase tree growth and the long-term timber supply may also increase the short-term timber supply. As the Timber Supply Review was designed to assess the timber supply impacts of current practices, the range of intensive silvicultural treatments that might be implemented in the Lakes Timber Supply Area was not examined. Further analyses are required to examine the potential opportunities for intensive silvicultural treatments and the implications of those treatments on timber supply and other resources.

• Commercial thinning
Approximately 11 per cent of the pine forests within the timber harvesting land base are between 40 and 80 years old and may be candidates for commercial thinning. However, to date very little commercial thinning has occurred in the Lakes Timber Supply Area. Commercial thinning has the potential to supply some additional timber in the short term. Further study is required to identify candidate forests for commercial thinning, to examine the feasibility of a commercial thinning program, and to assess the impact of this practice on the projected short- and long-term timber supply.

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Environmental and socio-economic implications

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Environmental concerns

The base case timber supply forecast proposes harvesting levels that may affect fish, wildlife and biodiversity. The forecasted levels will create younger forests on much of the area and this will have negative consequences for wildlife species that depend on older forests. Small, dispersed block harvesting will increase fragmentation and will affect those species requiring extensive undisturbed tracts of mature forest. However, the increase in younger forests could potentially result in increased habitat for some species such as moose, deer, black bears and many small mammals.

If not properly managed, increased road access may also have negative impacts on wildlife and fisheries species through increased hunting and angling pressure. Access may also have a negative impact on sensitive wildlife habitats. (*SEA* page 47)

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First Nations implications

As no reduction in the harvest level is indicated for the short- and medium-term, there will be no direct impact on employment of First Nations people within the Lakes Timber Supply Area. In the long term, the impacts on those employed in the forest industry would be the same as for the general population. First Nations are concerned with their ability to access a share of the allowable annual cut in the near future to assist with economic development.

Conflicting resource uses in traditional territories is also of concern. Specifically, the impact of past harvesting practices on wildlife habitats, trapping and traplines, aquatic habitats and the fisheries resource, and cultural/historical values is seen as critical. Trapping in particular is both culturally and economically important and is often in direct conflict with harvesting. Unchanged harvest levels will likely continue to impact these activities, but this is an area where co-management initiatives could prove beneficial.

Incomplete information on the location of both cultural/historical sites and traplines currently exacerbates the conflicts. Comprehensive inventories of First Nations cultural heritage areas and areas of traditional use have been initiated but are not complete. As inventories are completed, areas may need to be removed from the timber harvesting land base and harvesting practices may need to be modified. This is expected to impact the short- and long-term timber supply. (*SEA* page 45)

All the bands in the Lakes Timber Supply Area have registered an intent to negotiate a land claim through the B.C. Treaty Commission process and some initial discussions have occurred. The bands see treaty negotiations and forest resource management goals as being closely linked.

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Community and provincial implications

The impact of timber supply adjustments on local communities and the provincial economy is an important consideration in the timber supply review. Communities in the Lakes Timber Supply Area recognize the importance of the timber industry in their economy, and have expressed concern about possible changes in timber supply resulting from this review and other government initiatives, such as the Forest Practices Code and the Protected Areas Strategy. Initiatives through Forest Renewal Plan will also offset future impacts.

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Chief forester's determination

The chief forester must determine an allowable annual cut as part of a strategy to achieve the projected long-term sustainable timber supply level. The base case forecast provides one alternative, but the chief forester may select another harvest level based on his consideration of the factors required under Section 7 of the *Forest Act*.

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Your input is needed

The allowable annual cut is an important determination requiring well-informed and thoughtful public input. We ask you to answer the questions on the response form at the back of this paper. We encourage you to add any additional comments you feel are relevant. If you prefer, additional comments or a detailed submission may be written on separate pages.

Feedback is welcomed on any aspects of this *Discussion Paper*, the *Timber Supply Analysis Report* and the *Socio-Economic Analysis Report,* and other topics related to the timber supply in the Lakes Timber Supply Area. Forest Service staff would be pleased to discuss questions or concerns that would help you prepare your response.

Please mail the completed questions and your comments to the forest district manager at the address below. Your comments will be accepted until September 13, 1995.

You may identify yourself on your response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If the responses are requested, personal identifiers will be removed before the responses are released.

A summary of public comments will be available from the district manager when the chief forester's allowable annual cut determination is announced.

For more information contact:

Bill Brinnen
District Manager
Lakes Forest District
Box 269
Burns Lake, B.C.
V0J 1E0

Phone: (604) 692-2200
Fax: (604) 692-7461

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Discussion Paper Response Form

The *Forest Act* requires the chief forester to consider the following factors to determine the allowable annual cut for timber supply areas and tree farm licence areas:

- the rate of timber production that can be sustained from the area
- the short- and long-term implications for the province of alternative rates of timber harvesting from the area
- the timber requirements of established and proposed timber processing facilities
- the economic and social objectives of the Crown, as expressed by the minister, for the area, the general region, and the province
- abnormal pest infestations in the timber on the area and major salvage programs that are planned

The technical reports that have been prepared for the Timber Supply Review of the Lakes Timber Supply Area provide information on these factors. We welcome further input from the public to ensure the best available information is used in the allowable annual cut determination. Please provide your comments on this form, or in another format by September 13, 1995.

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A. Economic and social objectives

Please use the space below to provide your comments regarding the economic and social objectives you believe should be considered in determining the allowable annual cut for the Lakes Timber Supply Area.

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B. Technical forestry factors and impacts of alternative rates of harvest

Please use the space below to provide any information which you believe may assist the chief forester in considering the technical factors to determine the allowable annual cut for the Lakes Timber Supply Area. Further information on the critical factors outlined on pages 8 to 11 in this paper would be most helpful.

Which community sector listed below best describes your interests?

	local business		**timber industry**
	outdoor tourism		**environmental conservation**
	general public		**other (please define)**
	First Nation		**government agency (please identify)**

Name (optional)

Address (optional)

Mail your comments to:
Bill Brinnen
District Manager
Lakes Forest District
Box 269
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